UNCLASSIFIED

AD 402 210

Reproduced
by the

DEFENSE DOCUMENTATION CENTER

FOR

SCIENTIFIC AND TECHNICAL INFORMATION

CAMERON STATION, ALEXANDRIA, VIRGINIA

UNCLASSIFIED

4022210

TECHNICAL

MEMORANDUM

(TM Series)

ASTIA AVAILABILITY NOTICE

Qualified requesters may obtain
copies of this report from ASTIA.

This document was produced by SDC in performance of contract AF 19(628)-1648, Space
Systems Division Program, for Space Systems Division, AFSC.

New 1604 Computer Programs	**SYSTEM**
Milestone 5 (Supplement)	**DEVELOPMENT**
Input Tracking Data (STAPIN)	
by	**CORPORATION**
Nancy J. Speer	**2500 COLORADO AVE.**
14 March 1963	
Approved	**SANTA MONICA**
B. G. Ciaccia	**CALIFORNIA**

SDC

APR 2 6 19

TISIA

A-1159

Modified Pages	Notes and Filing Instructions
24	Insert new pages dated 14 March 1963
25	
26	
27	
28	

PREFACE

In compliance with the directive received by SDC
as Letter No. A63-1959.10-139 dated 20 February
1963 from Aerospace Corporation, another option
will be added to the Mod AD version of the
subroutine, Input Tracking Data (STAPIN). This
document describes the new option and is
produced as a supplement to the existing
Milestone 5 for STAPIN, TM-(L)-793/003/00.

1.0 INTRODUCTION

The subroutine, Input Tracking Data (STAPIN), as described in TM-(L)-793/003/00, is being revised to include a general input capability in addition to the selective input capability originally designed. In brief, the selective input capability requires the user program to specify the data to be input by providing station number, revolution number, and antenna identification. STAPIN then requests the data by station, revolution and vehicle number from either the Operator or SRDTRK, depending on whether data transmission is via paper tape or the Bird Buffer Transfer Tape. If transfer tape is used, SRDTRK searches for the specified data. When the data are found, SRDTRK sets the interlock on the interrupt capability until STAPIN indicates that it is through with the input process; at which time the interlock is removed and the Transfer tape is positioned at its logical end.

With the general input capability, which will be incorporated in the Mod AD version of STAPIN, the user program need not specify station, revolution, and antenna. STAPIN will either input data for the appropriate vehicle from the source (magnetic tape or paper tape) indicated by the Operator or, if possible, from the source implied by the user program (see Section 3.1). When using this option in conjunction with reading the Transfer tape, STAPIN will not allow SRDTRK to remove the interrupt interlock until the logical end of tape is reached or until the user program tells STAPIN to terminate the interlock, whichever occurs first. The use and hazards of this additional capability are described in the following paragraphs.

2.0 USAGE

2.1 Calling Sequence

The calling sequence will remain the same as described in paragraph 3.1.1 of TM-(L)-793/003/00. However, the lower half of the first word (α containing antenna type, doppler indicator, and station)

can be set to zero; if it is, the specified revolution number will be
disregarded. Also, the sign of the second word ($\alpha + 1$ containing
maximum number of points and revolution) will indicate whether STAPIN
should allow the interrupt interlock to be removed. A positive value
means remove the interlock when finished; a negative means do not
remove the interlock. Note that when the sign is negative the value
will be assumed to be in complement form. This indicator has no
meaning when paper tape is being processed.

2.2 Identifications Given Upon Return

STAPIN will set the station number in cell ST in the RIPOOL. The
antenna identification will be set in the Q-register upon return. When
the Operator indicates there is no more data to be processed, STAPIN
will execute an error return with the Q-register set at minus zero.

2.3 On-Line Messages

Initially, STAPIN will request data from the Operator with the
typewriter message:

"REQUEST DATA

IF TRANSFER TAPE, SET A NQ 0, HIT START

IF PRESTORED TAPE, SET Q NQ 0, HIT START

IF PAPER TAPE, HIT START

IF NONE, SET A AND Q NQ 0, HIT START"

Subsequent requests are made with the first line only: "REQUEST
DATA". After the Operator provides the input (if necessary), he will
inform STAPIN of the source by setting the A and Q registers as
prescribed in the message.

Once input from the Transfer tape is initiated, no message will
appear until the Transfer tape is entirely processed. Further requests
for data take the form of: "REQUEST PAPER TAPE". The Operator will
load the paper tape into the paper tape reader and hit start; or load
the prestored magnetic tape onto tape unit 7, set the Q-register to not
zero and hit start. The Operator will indicate when there is no more
data to be input by setting both the A and Q registers to not zero.

If a header error is detected when reading paper tape under the general input option, the following message will appear on the typewriter:
"NO HEADER
TO REREAD, SET ACC NQ 0, HIT START
TO CONTINUE, TYPE MONTH, DAY, AMPM AS MM/DD A (OR P)
STATION NUMBER, THEN FORMAT- -0 = MOD2, 1 = DOPPLER,
2 = ANGLES"

The Operator will decide whether to reread or continue and will act accordingly. The month, day, AM/PM indicator, station, and format will be input via the typewriter as two digits (01-12) for month followed by any symbol or space, two digits (01-31) for day, a space, an "a" for AM or "p" for PM, a space, the decimal station number, a space, and the correct digit for the paper tape format. If the paper tape is from a semi-augmented station (IOS), the format need not be input. This message will not be typed if the paper tape is prestored.

If the logical end of tape is encountered when reading prestored paper tape, the message "NO MORE DATA ON PRESTORED TAPE" will be typed. The Operator will respond to this message in the same way he responds to the "REQUEST DATA" message. However, if he wants to read prestored tape he must manually rewind the tape or replace it with another prestored tape.

3.0   INPUT METHOD
3.1   Bird Buffer Transfer Tape

Because of the interrupt capability, the Transfer tape is assumed to be positioned at its logical end. Consequently when using the general input option and allowing the Operator to initiate input of the Transfer tape, the Transfer tape will be rewound and the first file of tracking data for the appropriate vehicle will be input. The only problem with this method is that the user program may have already fit

to these data. The problem can be avoided if the user program initiates Transfer tape input by calling STAPIN with the selective input option giving the antenna, station, and revolution associated with a specific file on the tape, and indicating that the interrupt interlock should be retained. STAPIN will then find and process the specified data. Subsequent calls to STAPIN with the general input option will cause STAPIN to process subsequent files on the tape (one file per call) until the logical end of tape is reached or until the user program tells STAPIN to remove the interlock.

If two antennas are reporting from one station, STAPIN will prefer the data from an antenna giving angles and range to the data from an antenna giving angles only.

3.2 Paper Tape

Other than the change in external communication with the Operator via the on-line typewriter, the input of data from unaugmented stations will be the same as stated in TM-(L)-793/003/00. However, when reading the prestored magnetic tape, STAPIN will start from wherever the tape is positioned and search for the beginning of the next file of tracking data. When the logical end of tape is reached the tape will not be rewound automatically. The Operator will be notified that there is no more data on the prestored tape. He may then choose to rewind the tape manually.

For paper tape from semi-augmented stations, the choice between data from two antennas will be based on data type; angles and range will be chosen in preference to angles only.

4.0 RESTRICTIONS

If the user program decides to discontinue its operation, it must notify STAPIN by setting the second cell ($\alpha + 1$) in the calling sequence to a positive value so STAPIN can remove, if necessary, the interrupt interlock placed on the Transfer tape.

External Distribution List

Space Systems Division
(Contracting Agency)
    Major C. R. Bond (SSOCD)

6594th Aerospace Test Wing
(Contracting Agency)
    Lt. Col. A. W. Dill (TWRD)
    Lt. Col. M. S. McDowell (TWRU) (2)
    TWACS   (14)

PIR-E1 (Lockheed)
    N. N. Epstein
    C. H. Finie
    H. F. Grover
    W. E. Moorman   (5)
    461 Program Office
    698BK Program Office

PIR-E2 (Philco)
    J. A. Bean
    J. A. Isaacs
    R.   Morrison
    S. M. Stanley

PIR-E3 (LFE)
    D. F. Criley
    K. B. Williams

PIR-E8 (Mellonics)
    F.   Druding

PIR-E5 (Aerospace)
    F. M. Adair
    R. O. Brandsberg
    L. H. Garcia
    G. J. Hansen
    C. S. Hoff
    L. J. Kreisberg
    T. R. Parkin
    E. E. Retzlaff
    H. M. Reynolds
    D.   Saadeh
    R. G. Stephenson
    V.   White

PIR-E4 (GE - Sunnyvale)
    J.   Farrentine
    N.   Kirby

PIR-E4 (GE - Santa Clara)
    D.   Alexander

PIR-E4 (GE - Box 8555)
    J. S. Brainard
    R. J. Katucki
    J. D. Selby

PIR-E4 (GE - 3198 Chestnut)
    J. F. Butler
    H. D. Gilman

PIR-E4 (GE - Bethesda)
    A.   Pacchioli

PIR-E4 (GE - Box 8661)
    J. D. Rogers

Internal Distribution (cont.)

C. M. Seacat	Sunnyvale
Seiden, H. R.	22091A
Shapiro, R. S.	25026
Skelton, R. H.	24127A
Solomon, J.	24053
Speer, N. J.	20079
Stone, E. S.	22116B
Sweeney, M. J.	24057
Taber, W. E.	22053
Tennant, T. C.	27024
Testerman, W. D.	14039
Thompson, J. W.	22077
Thornton, R. L.	14050
Totschek, R. A.	24090A
Vorhaus, A. H.	24076A
Wagner, I. T.	24081
Warshawsky, S. B.	22082
West, G. D.	Sunnyvale
West, G. P.	24094A
Wilson, G. D.	22101
Winsor, M. E.	24137
Winter, J. E.	24097
Wise, R. C.	24051
Wong, J. P.	Sunnyvale
Zubris, C. J.	24075
Becerra, C.	24082

Internal Distribution List

AFCPL (5)	14059	Houghton, W. H.	22073
Allfree, D.	22078	Hoyt, R. L.	14039
Alperin, N. I.	24118A	Imel, L. E.	14039
Armstrong, E.	24089	Kastama, P. T.	24053
Bernards, R. M.	Sunnyvale	Kayser, F. M.	25026
Biggar, D.	24090B	Keddy, J. R.	25026
Bilek, R. W.	24124	Key, C. D.	24123
Black, H.	14039	Keyes, R. A.	22073
Brenton, L. R.	22070	Kinkead, R. L.	24071
Burke, B. E.	22076	Kneemeyer, J. A.	24065A
Busch, R. E.	24065B	Knight, R. D.	24110B
Carter, J. S.	27032	Kolbo, L. A.	24139
Champaign, M. E.	24127B	Kostiner, M.	14056B
Chiodini, C. M.	22078	Kralian,. R. P.	14039
Ciaccia, B. G.	24082A	Kristensen, K.	Sunnyvale
Cline, B. J.	24097	LaChapelle, F.	24061
Cobley, J. L.	24135	Laughlin, J. L.	20073
Conger, L.	22079	LaVine, J.	20079
Cooley, P. R.	24083	Little, J. L.	20077
Court, T. D.	22073	Long, F.	24122
Crum, D. W.	24093	Madrid, G. A.	22049
Dant, G. B.	22073	Mahon, G. A.	20076
DeCuir, L. E.	22096A	Marioni, J. D.	24076B
Derango, W. C.	24082B	Martin, W. P.	24089
Dexter, G. W.	24128	McKeown, J.	24121
Disse, R. J.	24139	Michaelson, S. A.	14039
Dobbs, G..H.	24094B	Milanese, J. J.	24121
Dobrusky, W. B.	22125	Munson, J. B.	24048A
Ellis, R. C.	24081	Myers, G. L.	14056A
Emigh , G. A.	14039	Nelson, P. A.	24075
Ericksen, S. R.	24110A	Ng, J.	22049
Felkins, J.	22070	Ngou, L.	25030
Foster, G. A.	14039	Olin, C.	14054
Franks, M. A.	25030	Padgett, L. A.	24085
Frey, C. R.	24049	Patin, O. E.	Sunnyvale
Frieden, H. J.	24071	Polk, T. W.	24099
Gardner, S. A.	22053	Pruett, B. R.	24073
Greenwald, I. D.	24058A	Raybin, M.	14039
Griffith, E. L.	27029	Reilly, D. F.	24085
Haake, J. W.	24120	Remstad, C. L.	27029
Harris, E. S.	24083	Rosenberg, E. J.	14050
Henley, D. E.	24058B	Russell, R. S.	14050
Hill, C. L.	24057		
Hillhouse, J.	24049	Scholz, J. W.	14039
Holzman, H. J.	22096B	Scott, R. J.	24093

System Development Corporation,
Santa Monica, California
NEW 1604 COMPUTER PROGRAMS
MILESTONE 5 (SUPPLEMENT) INPUT
TRACKING DATA (STAPIN).
Scientific rept., TM(L)-793/003/00A,
by N. J. Speer. 14 March 1963,
7p.
(Contract AF 19(628)-1648, Space
Systems Division Program, for Space
Systems Division, AFSC)

Unclassified report

DESCRIPTORS: Programming (Computers).
Satellite Networks.

Presents change pages to "New 1604
Computer Programs Milestone 5 Input
Tracking Data (STAPIN)", dated
22 January 1963, by N. J. Speer.